

basal half of the primaries is much more extensive, the apical spot on the primaries is very small, and there is no spot on the costa near the apical angle of the secondaries.

Dr. Staudinger's collection contains a single specimen of this species, the only one we have yet seen.

XXXI.—*On the Identity of the Ophiuran Genera Ophiopleura, Danielssen and Koren, and Lütkenia, Duncan, with Notes on the Species.* By Prof. P. MARTIN DUNCAN, M.B. Lond., F.R.S., &c.

THE remarkable Ophiurans collected at Discovery Bay by Mr. Hart, naturalist on board H.M.S. 'Discovery,' were described by me in the 'Annals' for August 1878; and their structural characteristics were so remarkable and different from those of any genus with which I was acquainted, that it was necessary to include the forms under a species of a new genus, *Lütkenia*.

Of course all the available literature, relating to the northern Ophiurans especially, was searched before the generic diagnosis and title were decided upon; and I was not aware that any thing had been published relating to the subject later than Marenzeller's report on the Cœlenterata, Echinodermata, and worms of the Austro-Hungarian North-pole expedition, 1877. But a "Separat-Aftryk af Nytt Magazin for Naturvidenskaberne," Christiania, was published in 1877; and it relates to the Echinodermata of the Norske Nordhavsexpedition, written by Danielssen and Koren.

It contains the description of an Ophiuran which was sufficiently peculiar to be separated from all others in a new genus, *Ophiopleura*. The single species is fortunately well illustrated and has been called *Ophiopleura borealis*, Dan. & K. The specimens came from 510–570 fathoms, temperature 1°·3 C., and not further north than 63° 5' N. lat.

The form was so decidedly separable, that the Scandinavians made a new family for its reception; and they consider the irregular arrangement and shape of the teeth of paramount importance:—"Tænderne i uregelmæssige Rækker, fladtrykte, tilspidsede." This is the essential characteristic of *Lütkenia*, nobis. Again, their generic diagnosis corresponds with that of the genus I had established, with an exception which is somewhat remarkable. In the description of the species much is made of the presence of ten "Ribber"

on the upper surface of the disk, some 15 millims. long and 12 millims. broad, with spaces between them and a clear centrum. These very prominent objects on a disk with a circular outline are exceedingly striking. They are associated with very small wide-apart radial shields. The mouth-papillæ are numerous, and three are beneath the irregular set of rows of true teeth; and the tentacle-papillæ are numerous. The "Ribber" are not in the specimens of *Lütkenia arctica*, nobis; but the other details are visible, with slight and specific differences. What, then, are these ten "Ribber"? I find that in *Lütkenia* the body is rather more pentagonal than circular in outline; but there is a swollen condition of the upper part of the disk in situations corresponding with the sacs leading downwards into the remarkably limited generative openings; this is all; and the radial shields correspond with those of *Ophiopleura*. There can be little doubt that the "Ribber" are of secondary importance; and therefore I give the distinguished Scandinavian naturalists their due, and withdraw *Lütkenia*.

The question now arises, is the species *Ophiopleura borealis* of those authors identical with *Lütkenia arctica*? or are the structural differences sufficient to separate them specifically? The following are the distinctions; and I have taken the opportunity of again studying the species I named, so as to be doubly sure. The species from Smith's Sound has no "Ribber;" its disk-scaling is smaller than in the species *borealis*; and the outline is pentagonal instead of circular. The upper arm-plates are more convex and more medianly pointed in the arctic species; and the second and third lower arm-plates of the boreal form differ entirely. The other lower arm-plates have the breadth, but the few within the disk have not the aboral point of the arctic form. The jaws differ in shape: the accessory pieces are not seen in *Ophiopleura borealis*; and its tentacle-scales are differently arranged and are more numerous in mid arm than in the other form. The arctic forms have round tentacle-spaces, and the others have them elongate, at the root of the arms. The mass of tentacle-scales and accessory pieces at their base, in relation to the tentacle at the side of the first lower arm-plate, are very strongly marked in the form from Smith's Sound, but not so in that described from the sea to the east of Greenland. Both are very fine forms and large; and the slight increase of dimensions in the boreal type is not sufficient to explain the structural differences. I therefore consider the species *arctica* to hold good and the classificatory position to be as follows:—

Family Ophiopleuridæ.

Genus OPHIOPLEURA, Dan. & K. 1877.

1. *Ophiopleura borealis*, Dan. & K.2. *Ophiopleura arctica*, Duncan.

I have to express my thanks to the Rev. A. M. Norman, F.L.S., for sending me the "Separat-Aftryk" and for drawing my attention to the identity of *Ophiopleura* and *Lütkenia*.

August 9, 1878.

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

March 20th, 1878.—Henry Clifton Sorby, Esq., F.R.S.,
President, in the Chair.

The following communications were read:—

1. "Note on an Os articulare, presumably that of *Iguanodon Mantelli*." By J. W. Hulke, Esq., F.R.S., F.G.S.

In this paper the author described what he believed to be the os articulare of *Iguanodon Mantelli*, from the best specimen of a series of five collected by the Rev. W. Fox, of Brixton, in the Isle of Wight. He remarked that the mandible represented by this bone differs greatly from that of the Crocodilia, and in a less degree from that of extant Lizards, while in some respects it resembles that of *Hypsilophodon Foxii*. From this resemblance and the relative abundance of the bone in the same beds which have yielded mandibular rami of *Iguanodon*, he felt justified in referring the bone to the latter Saurian.

2. "Description of a new Fish from the Lower Chalk of Dover." By E. Tulley Newton, Esq., F.G.S.

The author referred to his previous descriptions of fishes from British Cretaceous rocks belonging to Prof. Cope's genera *Portheus* and *Ichthyodectes*, and stated that he had since obtained a form referable to the allied genus *Daptinus*. The specimen is in the collection of the British Museum, and was procured from the Grey Chalk of Dover by Mr. Gardner. It consists of the head and some vertebræ, the characters of which are described in detail by the author, who stated that in some characters, especially the degree of flattening of the teeth, the fish seems to stand between *Ichthyodectes* and *Daptinus*, and hence proposed to name it *Daptinus intermedius*. The author further noticed the existence in the British Museum of a right maxillary bone from the Lower Chalk of Dover, which he thinks may indicate a second species of the same genus.